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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/822,718	04/13/2004	Bradley Charles Jones	P24330	2868

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RESTON, VA 20191

EXAMINER
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KASZTEJNA, MATTHEW JOHN

ART UNIT	PAPER NUMBER
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3739

DATE MAILED: 12/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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## Office Action Summary

Application No.

10/822,718

Applicant(s)

JONES ET AL.

Examiner

Matthew J. Kasztejna

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/12/04</u> . | 6) <input type="checkbox"/> Other: _____  |

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## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 21-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 21-22 recite the limitation "exit aperture". There is insufficient antecedent basis for this limitation in the claim.

Claim 23 recites the limitation "extensible member" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 6-12, 15-20, 22-29 and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,884,557 to Takehana et al.

In regards to claims 1, 20, 28 and 33, Takehana et al. disclose a position control apparatus for controlling position along an axis, comprising: an extensible

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member 26 that can be extended and contracted along the axis, comprising shape memory alloy locatable to expand and contract along the axis; heating means 30 for controlling the temperature of the shape memory alloy; and a feedback mechanism 32 for controlling the heating means and responsive to variations in the position; wherein the position is controllable by means of the heating means and can be stabilized by means of the feedback mechanism (see Col. 2, Lines 15-56). Furthermore, Takehana et al. disclose an optical fiber for providing illuminating light; a light condenser for focusing the illuminating light to an observational field; in addition to the position control apparatus for controlling the position of the observational field (see Col. 4, Lines 7-15). The apparatus of Takehana et al. is considered inherently capable of performing the recited method claims.

**In regards to claims 2 and 29**, Takehana et al. disclose a position control apparatus, wherein the axis is a depth or z axis (see Col. 4, Lines 27-29).

**In regards to claim 6**, Takehana et al. disclose a position control apparatus, wherein the feedback mechanism comprises a feedback sensor 32 for sensing the position of the apparatus and provide an output directed to the heating means to modify the heat applied to the shape memory alloy (see Col. 5, Lines 1-17).

**In regards to claim 7**, Takehana et al. disclose a position control apparatus, wherein the feedback mechanism comprises a plurality of feedback sensors 32 (see Fig. 1).

**In regards to claim 8**, Takehana et al. disclose a position control apparatus, wherein the heating means comprises a source of electrical current for heating the shape memory alloy (see Col. 4, Lines 43-63).

**In regards to claims 9-11**, Takehana et al. disclose a position control apparatus, wherein the source of electrical current is arranged to heat the shape memory alloy by passing the electrical current through the shape memory alloy and wherein the electrical current is a pulse width modulated current (see Col. 4, Lines 43-63).

**In regards to claim 12**, Takehana et al. disclose a position control apparatus, wherein the feedback mechanism comprises a variable resistance sensor (see Col. 4, Lines 36-57).

**In regards to claims 15-17, 23**, Takehana et al. disclose a position control apparatus, further comprising an elongate member 22 for securing the shape memory alloy to the apparatus, wherein the elongate member is longitudinally substantially rigid and laterally flexible (see Fig. 1).

**In regards to claim 18**, Takehana et al. disclose a position control apparatus, further comprising a flexible printed circuit board 34 arranged between and attached to two portions of the apparatus whose separation varies as the position is varied, to flex as the separation varies (see Col. 4, Lines 43-63).

**In regards to claim 19**, Takehana et al. disclose a position control apparatus, further comprising a home adjustment mechanism for setting a desired home position in the direction of the axis, such that subsequent

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adjustment of the position is relative to the home position (see Col. 2, Lines 42-56).

**In regards to claim 22**, Takehana et al. disclose a position control apparatus, wherein the endoscope includes an x-y scan mechanism incorporating the exit aperture, wherein the x-y scan mechanism is adjustable in position by means of the position control apparatus (see Col. 4, Lines 16-35).

**In regards to claims 23-27**, Takehana et al. disclose a position control apparatus for use with an endoscope which is inherently capable of being any one of a confocal endoscope, endomicroscope, microscope or colonoscope as it is well known in the art.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-5, 21 and 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,641,530 to Mitsumori.

**In regards to claims 1, 3-5, 21 and 30-32**, Mitsumori discloses a position control apparatus for controlling position along an axis with an endoscopic objective lens drive mechanism having a lens drive shaft for displacing a movable lens of an objective lens system in the direction of its optical axis. Furthermore, the objective lens drive mechanism includes a lens drive shaft

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rotatably mounted within the casing of the rigid tip end section, a flexible transmission shaft connected between the lens drive shaft and a rotational drive source, and an offset arm extended out from the movable lens frame and engaged with the lens drive shaft through a translating mechanism for converting forward and reverse rotations of the lens drive shaft into linear back and forth movement of the movable lens frame (see Col. 4, Lines 23-67). Mitsumori is silent with respect to the position control apparatus comprising a shape memory alloy locatable to expand and contract along an axis. However, Mitsumori teaches that the objective lens system necessarily includes a drive means for moving the movable lens frame in the direction of the optical axis. And as for a drive means of this sort, for example, there have been proposed a diversity of drivers including shape memory alloys (see Col. 2, lines 1-37). It would have been obvious to one skilled in the art at the time the invention was made to use a drive means consisting of a shape memory alloy in the apparatus of Mitsumori to allow for one to more accurately control at least one of focal depth, image magnification and view angle of the objective lens system as taught by Mitsumori.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,884,557 to Takehana et al. in view of International Publication No. WO 00/75712 to Harris et al.

**In regards to claim 13,** Takehana et al. disclose a position control apparatus for controlling position along an axis and a feedback mechanism but is silent with respect to wherein a capacitive sensor comprising a double wire coil

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capacitive sensor, wherein the separation of the coils of the double wire coil capacitive sensor varies according to the position of the apparatus thereby varying the output of the sensor. Harris et al. teach of an analogous medical apparatus wherein a series of capacitive sensors may be used for obtaining a feedback signal for the drive circuit. As a tune moves the pick-up signal is modulated, and the detected signal is amplified to provide the drive current to the coil. It would have been obvious to one skilled in the art at the time the invention was made to use a capacitive sensor in the apparatus of Takehana et al. to allow for a more practical method for obtaining feedback from the drive mechanism as taught by Harris et al.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,884,557 to Takehana et al. in view of U.S. Patent No. 4,450,937 to Asars.

**In regards to claim 14,** Takehana et al. disclose a position control apparatus for controlling position along an axis and a feedback mechanism but is silent with respect to wherein the feedback mechanism comprises an optical sensor comprising a pulsed red Light Emitting Diode and a Phase Locked Amplifying detecting diode. Asars teaches of electronic circuitry with self-calibrating feedback for use with an optical current sensor having both a pulsed light emitting diode and a phase locked amplifying detecting diode (see Fig. 2). It would have been obvious to one skilled in the art at the time the invention was made to use an optical sensor in the apparatus of Takehana et al. to ensure the feedback signal has a large dynamic range as well as excellent temporal and



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thermal stability to meet the requirements for most metering, protection, and control applications as taught by Asars.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Kasztejna whose telephone number is (571) 272-6086. The examiner can normally be reached on Mon-Fri, 8:30-6:00.

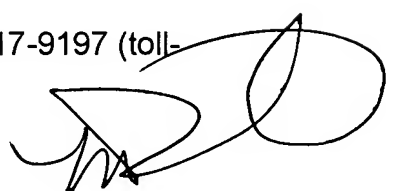
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Linda C.M. Dvorak can be reached on (571) 272-4764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MJK



12/12/05



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